# 3. SYSTEM-WIDE MARKET TRENDS AND SURVEY RESULTS

This chapter examines characteristics and trends of ferry travel that are common to all routes. Using the 1999 WSF Travel Survey data, various market segments are analyzed by trip purpose, boarding method, frequency of use, propensity to use transit, and others which characterize or subdivide system-wide ferry use. The focus is on how these market segments differ on a systemwide basis rather than identifying geographic differences, which will be evident in the subsequent travel corridor and route-specific chapters.

One obvious point of segmentation is the day of the week that travel occurs. Differences between weekday travel (both peak and non-peak times) and Sunday weekend travel will be highlighted. System-wide survey trends, including trip purpose and access/boarding/ egress modes are presented and, where applicable, compared to corresponding results from the 1993 survey.

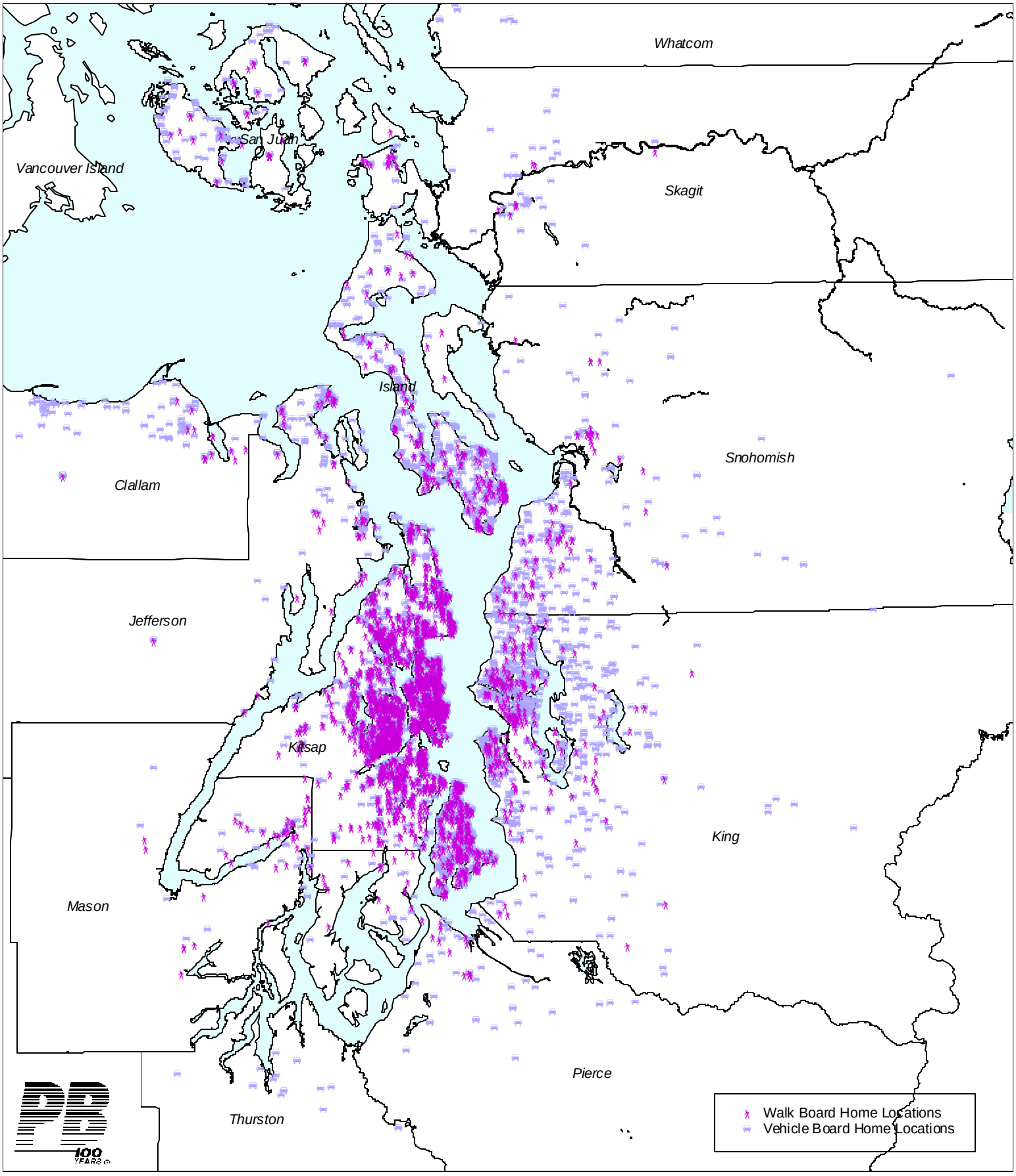
## 3.1 WSF MARKET AREA

In soliciting rider information to determine the WSF geographic market area, a means to obtain home address information was needed, as most survey respondents are generally reluctant to provide their home address or phone number. In order to increase the likelihood of obtaining this information, survey respondents were given a chance to win two round-trip airline tickets to anywhere in the continental US. All that was required to win was a valid address and phone number, which was needed to contact the winner of the drawing. This tactic proved to elicit a valid and identifiable home address from most survey respondents. These home addresses then facilitated a practical means for depicting the geographic market served by Washington State Ferries. Specifically, weekday and Sunday survey home address locations were geocoded to their latitude and longitude coordinates for plotting on a map. Note that addresses outside of western Washington and a few locations in British Columbia, Canada were not geocoded, as it becomes impractical to plot on a map of reasonable scale those points at the farthest reaches of WSF's market area, which generally is comprised of out-of-state tourists. Figure 3-1 presents the density plots of survey respondents' home addresses for both the PM peak and PM non-peak survey periods. In contrast, Figure 3-2 shows the home address locations for Sunday survey period respondents.

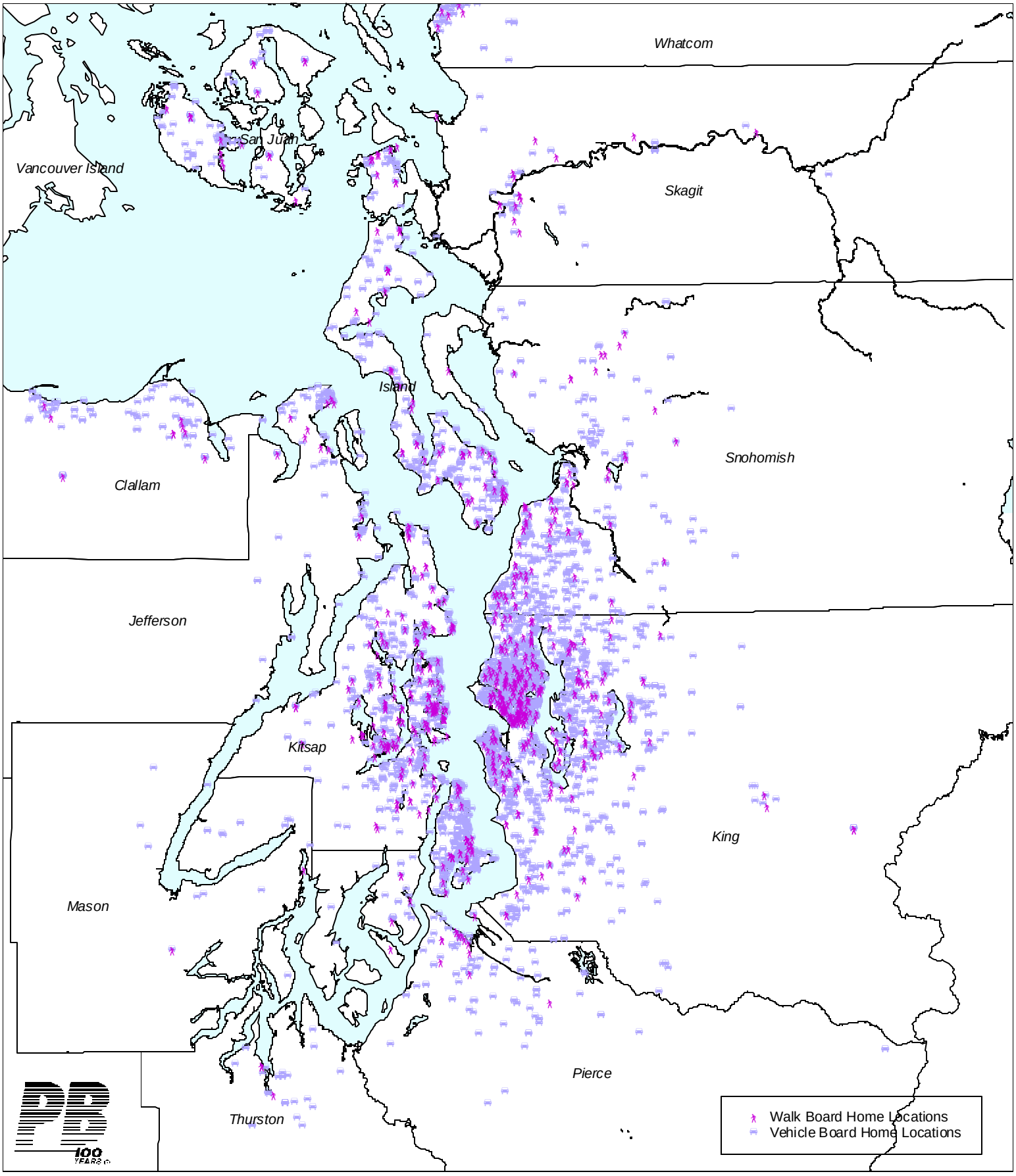
The two map figures show roughly the same overall dispersion of ferry rider home locations. However, weekday riders show more home locations and a denser residential pattern on the west side of Puget Sound, particularly in Kitsap County, than do Sunday respondents. Similarly, Sunday riders appear to be more likely to live on the east side of Puget Sound, and thus traveling to the west side via ferry.

These trends and others, including findings regarding trip purpose, types of origin and destination locations, frequency of use, and round-trip patterns, and the likely reasons for specific trends, are discussed in detail in the remainder of this chapter.

# Figure 3-1
# Weekday Market Served — Rider Home Locations for All Routes



# Figure 3-2
# Sunday Market Served — Rider Home Locations for All Routes



## 3.2 MARKET SEGMENT CHARACTERISTICS / DEMOGRAPHICS

A number of household and individual demographic questions were posed to survey respondents to help assess the characteristics of ferry riders and to support other future planning and research. Several of these demographic market segments results are tabulated and presented here. Additional route-specific demographic information can be found in Appendix B.

### 3.2.1 Age and Gender Findings

Table 3-1 charts the age distribution of weekday PM peak ferry riders by gender for the 1999 and 1993 travel surveys . Note that the category that might typically be labeled under age 18 captures youths down to age 15, which was the cutoff age for survey distribution. Given that a majority of weekday PM peak users are traveling for work/school/business-related reasons (see Table 3-14), it is not surprising to find that the age for nearly two-thirds of riders lies between 25 and 54 years.

**Table 3-1**
**Age Distribution by Gender**
**Weekday PM Peak Period — All WSF Routes**

| *Age Category / Gender* | *1993 Survey Age Distribution* | *1999 Survey Age Distribution* | *Male Riders Age Distribution* | *Female Riders Age Distribution* | *Gender Not Given Age Distribution* |
|---|---|---|---|---|---|
| 15 to 17 Years of Age | 1.2% | 0.9% | 0.8% | 1.0% | 0% |
| 18 to 24 Years of Age | 6.1% | 6.1% | 5.4% | 7.2% | 3.2% |
| 25 to 34 Years of Age | 18.2% | 15.2% | 15.4% | 15.4% | 11.6% |
| 35 to 44 Years | 29.2% | 23.1% | 24.4% | 22.4% | 15.9% |
| 45 to 54 Years | 23.1% | 26.1% | 27.2% | 25.4% | 22.6% |
| 55 to 64 Years | 10.1% | 13.6% | 14.7% | 13.1% | 6.9% |
| 65 Years or More | 8.1% | 8.4% | 8.6% | 8.5% | 5.2% |
| No Answer | 4.0% | 6.6% | 3.6% | 7.0% | 34.3% |
| **Totals** | **100.0%** | **100.0%** | **100.0%** | **100.0%** | **100.0%** |
| **Gender Distribution** | | **100.0%** | **49.0%** | **46.6%** | **4.5%** |
| **Expanded Ridership** | | **26,494** | **12,970** | **12,337** | **1,187** |

It is interesting to note that the aging baby boomer demographic trends appear to be affecting the average age of WSF patrons. In 1993, the most common age bracket for PM peak period survey respondents was 35 to 44 years, at 29% of all riders. In 1999, the most common age bracket has jumped to 45 to 54 years (26%, up from 23%), and the 35 to 44

bracket had decreased to 23%. Moreover, persons age 45 and over represent 48% of all PM peak period riders, seven percentage points more than in 1993.

***"Persons age 45 and over represent 48% of all PM peak period riders, a full seven percentage points more than in 1993."***

The gender distribution for the 1999 survey PM peak period responses appears to be similar, though perhaps a bit more evenly split between the sexes, than was found in the 1993 survey. Results of the 1999 survey show that about half of PM peak period riders are male and about 47% are female, with the remainder choosing not to answer. In 1993, just over half of the survey respondents were male, about 43% were females and about 5% of PM peak period respondents did not answer this question.

The age distribution for weekday PM non-peak users shown in Table 3-2 is not substantially different from the PM peak period, with the possible exception that seniors age 65 and older comprise a larger share (12% versus 8%) of off-peak riders than of peak period riders. Male riders appear to slightly outnumber female riders in the non-peak period, similar to PM peak period findings. The 1993 survey did not include a PM non-peak sample.

**Table 3-2**
**Age Distribution by Gender**
**Weekday PM Non-Peak Period — All WSF Routes**

| *Age Category / Gender* | *1999 Survey Age Distribution* | *Male Riders Age Distribution* | *Female Riders Age Distribution* | *Gender Not Given Age Distribution* |
|---|---|---|---|---|
| 15 to 17 Years of Age | 1.1% | 0.5% | 1.6% | 1% |
| 18 to 24 Years of Age | 7.6% | 8.1% | 7.4% | 3.8% |
| 25 to 34 Years of Age | 14.3% | 16.2% | 12.9% | 5.8% |
| 35 to 44 Years | 21.8% | 20.6% | 23.5% | 15.3% |
| 45 to 54 Years | 23.5% | 22.7% | 24.3% | 24.0% |
| 55 to 64 Years | 13.0% | 14.8% | 11.8% | 4.4% |
| 65 Years or More | 12.6% | 13.2% | 12.7% | 4.1% |
| No Answer | 6.2% | 4.1% | 5.8% | 41.3% |
| **Totals** | **100.0%** | **100.0%** | **100.0%** | **100.0%** |
| **Gender Distribution** | **100.0%** | **49.7%** | **46.7%** | **3.6%** |
| **Expanded Ridership** | **12,346** | **6,139** | **5,762** | **444** |

Note: The 1993 survey did not include the PM non-peak period.

As indicated in Table 3-3, Sunday respondents are slightly more evenly distributed by age than weekday riders, though the 45 to 54 years age bracket remains the largest. Note that female riders outnumber males by a non-trivial margin on Sundays. The 1993 survey

analysis also revealed a higher percentage of female riders on Sunday, however with a considerably smaller difference than the 1999 findings. As was found in results for the weekday analysis, the average age among Sunday users has increased noticeably since 1993.

**Table 3-3**
**Age Distribution by Gender**
**Sunday Survey Period — All WSF Routes**

| *Age Category / Gender* | *1993 Survey Age Distribution* | *1999 Survey Age Distribution* | *Male Riders Age Distribution* | *Female Riders Age Distribution* | *Gender Not Given Age Distribution* |
|---|---|---|---|---|---|
| 15 to 17 Years of Age | 3.1% | 1.2% | 1.4% | 1.2% | 0% |
| 18 to 24 Years of Age | 8.8% | 7.0% | 6.0% | 8.1% | 4.0% |
| 25 to 34 Years of Age | 19.5% | 16.4% | 15.3% | 17.2% | 18.8% |
| 35 to 44 Years | 25.1% | 21.7% | 21.9% | 22.4% | 11.6% |
| 45 to 54 Years | 19.7% | 24.3% | 24.0% | 24.4% | 26.4% |
| 55 to 64 Years | 10.1% | 13.3% | 15.0% | 12.4% | 7.6% |
| 65 Years or More | 8.6% | 10.2% | 12.5% | 8.6% | 6.8% |
| No Answer | 5.1% | 5.8% | 4.0% | 5.8% | 24.4% |
| **Totals** | **100.0%** | **100.0%** | **100.0%** | **100.0%** | **100.0%** |
| **Gender Distribution** | | **100.0%** | **42.9%** | **52.7%** | **4.4%** |
| **Usable Responses** | | **5,701** | **2,446** | **3,005** | **250** |

### 3.2.2 Employment Status and Gender Findings

Surveyed riders were asked to indicate their occupational status as employed, student, military personnel, or none. Roughly 3% of survey respondents indicated more than one of the above choices. Space constraints on the questionnaire limited the number of choices that could be presented; as such, there may be some people whose status did not fit the choices. For example, self-employed people should have checked "employed" but conceivably, some may have checked "none" or skipped the question altogether.

During the weekday PM peak period, 73% of ferry riders are currently employed, with a few of those also indicating that they were students and/or military personnel. Assuming that those who reported full time military for occupational status are in fact "employed," then fully three-quarters of PM peak ridership is employed (see Table 3-4.) Just over 5% of PM peak riders classify themselves as primarily students, or students that are also employed or in the military. Males were somewhat more likely to report a military status whereas females were more likely to report none, indicating that they were homemakers or belong to an occupational category not represented on the survey form.

Weekday PM non-peak travel included relatively fewer employed persons, a somewhat larger percentage of students and military personnel, and substantially more riders who selected the "none" option for occupational status, as indicated in Table 3-5. This latter group of non-students, non-employed persons, which would include retirees, would likely have more flexibility in their time of travel, and thus may be choosing to travel during off-peak times to avoid congestion, both on the ferry and on the connecting road network.

Sunday survey respondents were more likely to be employed than weekday PM non-peak riders but less likely than those traveling during the four hour PM peak period. Nearly 20% of Sunday respondents indicated that they did not fall into the three standard occupational categories. In addition, nearly 9% of Sunday respondents classified themselves as students (5% as singularly students, and another 4% as students also employed or in the military), compared to only 5% for the weekday PM peak and even less for the PM non-peak.

**Table 3-4**
**Employment Status by Gender**
**Weekday PM Peak Period — All WSF Routes**

| *Employment Status / Gender* | *Male* | *Female* | *Gender Not Given* | *All Riders* |
|---|---|---|---|---|
| Employed | 76.3% | 66.8% | 44.0% | 70.4% |
| Student | 2.1% | 3.9% | 2.8% | 2.9% |
| Military Personnel | 3.5% | 0.5% | 1.8% | 2.0% |
| Employed & Student | 1.1% | 2.3% | 0.8% | 1.7% |
| Employed & Military | 0.5% | 0.5% | 0.5% | 0.5% |
| Military & Student | 0.2% | 0.1% | 0.0% | 0.1% |
| Employed, Military & Student | 0.1% | 0.1% | 0.0% | 0.1% |
| None | 11.3% | 19.4% | 7.7% | 14.9% |
| No Answer | 4.9% | 6.5% | 42.3% | 7.3% |
| **Totals** | **100.0%** | **100.0%** | **100.0%** | **100.0%** |
| **Distribution by Gender** | **49.0%** | **46.6%** | **4.5%** | **100.0%** |
| **Expanded Ridership** | **12,970** | **12,337** | **1,187** | **26,494** |

## Table 3-5
## Employment Status by Gender
## Weekday PM Non-Peak Period – All WSF Routes

| *Employment Status / Gender* | *Male* | *Female* | *Gender Not Given* | *All Riders* |
|---|---|---|---|---|
| Employed | 65.8% | 54.9% | 33.0% | 59.5% |
| Student | 3.7% | 5.0% | 3.7% | 4.3% |
| Military Personnel | 5.0% | 1.1% | 4.2% | 3.2% |
| Employed & Student | 1.9% | 3.2% | 0.0% | 2.5% |
| Employed & Military | 0.5% | 0.3% | 0.0% | 0.4% |
| Military & Student | 0.4% | 0.1% | 0.0% | 0.3% |
| Employed, Military & Student | 0.0% | 0.0% | 0.0% | 0.0% |
| None | 16.7% | 29.3% | 9.9% | 22.3% |
| No Answer | 6.0% | 6.2% | 49.3% | 7.6% |
| **Totals** | **100.0%** | **100.0%** | **100.0%** | **100.0%** |
| **Distribution by Gender** | **49.7%** | **46.7%** | **3.6%** | **100.0%** |
| **Expanded Ridership** | **6,139** | **5,762** | **444** | **12,346** |

## Table 3-6
## Employment Status by Gender
## Sunday Survey Period – All WSF Routes

| *Employment Status / Gender* | *Male* | *Female* | *Gender Not Given* | *All Respondents* |
|---|---|---|---|---|
| Employed | 69.7% | 61.1% | 43.2% | 64.0% |
| Student | 4.3% | 5.6% | 3.2% | 4.9% |
| Military Personnel | 2.8% | 0.6% | 2.8% | 1.6% |
| Employed & Student | 1.4% | 2.7% | 1.6% | 2.1% |
| Employed & Military | 0.5% | 0.3% | 0.4% | 0.4% |
| Military & Student | 0.0% | 0.1% | 0.0% | 0.1% |
| Employed, Military & Student | 0.0% | 0.0% | 0.0% | 0.0% |
| None | 15.8% | 22.7% | 10.0% | 19.2% |
| No Answer | 5.4% | 6.9% | 38.8% | 7.6% |
| **Totals** | **100.0%** | **100.0%** | **100.0%** | **100.0%** |
| **Distribution by Gender** | **42.9%** | **52.7%** | **4.4%** | **100.0%** |
| **Usable Responses** | **2,446** | **3,005** | **250** | **5,701** |

### 3.2.3 Other Household Characteristics of Ferry Users

#### Household Size

The average household size reported by weekday PM peak period riders is 2.8 persons, compared to 2.7 persons for Sunday respondents. These results are similar to those found in the 1993 survey, in which the reported household size was approximately 2.7 for both weekday PM peak period and Sunday respondents. Forty six percent of PM peak users belong to a two person household, the most common household size reported. This is a bit higher than the 40% indicating a two person household in 1993. Only 1% of ferry users belong to households of more than seven people. The distribution of household size for PM non-peak users and Sunday respondents did not vary significantly from the PM peak distribution.

#### Vehicle Passenger Household Status

Surveyed vehicle passengers were asked if they lived in the same household as the vehicle driver in an attempt to identify carpooling by people who are not part of the same family or household. Statistics regarding vehicle passengers' household status are presented in Table 3-7. In the weekday PM peak period, at least 38%of vehicle passengers live in a different household as the driver, indicating a carpooling arrangement that may have developed to share travel expenses, or take advantage of HOV facilities, including priority ferry loading. The actual percentage may even be higher, given that 18% of vehicle passengers did not answer this question. On Sundays, vehicle passengers are more likely to live in the same household as the driver, which is probably indicative of families traveling together for social or recreational trip purposes. Nonetheless, 25% of Sunday vehicle passengers responding lived in a different household, indicative of friends traveling together, perhaps encouraged by ride-sharing incentives, which may still contribute to weekend travel decisions.

**Table 3-7**
**Vehicle Passenger Household Status in Relation to Driver**
**PM Peak and Sunday Survey Periods — All WSF Routes**

| *Vehicle Passenger in Same Household as Driver* | *Weekday PM Peak Period* | *Sunday Survey Period* |
|---|---|---|
| Yes — Passenger in Same Household as Driver | 43.9% | 62.4% |
| No — Different Households | 37.9% | 24.9% |
| No Answer | 18.2% | 12.7% |
| **Totals** | **100.0%** | **100.0%** |

## Household Income Distribution

Surveyed riders were asked to identify the annual income range which matched their household's 1998 income before taxes. Over 80% of survey respondents reported their income, with $50,000 to $74,999 per year the most commonly reported range across all three survey periods. This appears to be consistent with the Puget Sound Regional Council's reported median household income of $54,200 for King, Pierce, Snohomish, and Kitsap counties in 1997. The average household income of PM peak period riders is only slightly higher than that of off-peak and Sunday riders.

**Table 3-8**
**Ferry User Household Income Distribution**
**Weekday & Sunday Survey Periods — All WSF Routes**

| *Household Income* | *Weekday PM Peak Period* | *Weekday PM Non-Peak Period* | *Sunday Survey Period* |
|---|---|---|---|
| Less than $15,000 per year | 3.8% | 5.7% | 5.4% |
| $15,000 to $34,999 per year | 14.6% | 16.2% | 14.7% |
| $35,000 to $49,999 per year | 15.4% | 14.3% | 14.3% |
| $50,000 to $74,999 per year | 24.5% | 22.7% | 21.0% |
| $75,000 to $99,999 per year | 12.4% | 11.8% | 11.9% |
| More than $100,000 per year | 14.2% | 14.2% | 15.9% |
| No Answer | 15.1% | 15.0% | 16.8% |
| **Totals** | **100.0%** | **100.0%** | **100.0%** |
| **Usable Responses** | **7,425** | **1,966** | **5,701** |
| **Expanded Ridership** | **26,494** | **12,346** | **N/A** |

## ADA Eligibility of Survey Respondents

All surveyed riders were asked if, to the best of their knowledge, they were eligible to receive transportation services under the Americans with Disabilities Act. Table 3-9 presents these results, which do not differ significantly by survey period.

**Table 3-9**
**ADA Transportation Services Eligibility**
**Weekday & Sunday Survey Periods — All WSF Routes**

| *Eligible for Transporation Services under the Americans with Disabilities Act* | *Weekday PM Peak Period* | *Weekday PM Non-Peak Period* | *Sunday Survey Period* |
|---|---|---|---|
| Yes — Eligible for ADA Trans. Services | 1.3% | 2.5% | 1.6% |
| No — Not Eligible for ADA Trans. Services | 91.7% | 88.9% | 90.2% |
| No Answer | 7.1% | 8.6% | 8.2% |
| **Totals** | **100.0%** | **100.0%** | **100.0%** |
| **Usable Responses** | **7,425** | **1,966** | **5,701** |
| **Expanded Ridership** | **26,494** | **12,346** | **N/A** |

## 3.2.4 Ticket Fare Types and Wait Times by Boarding Mode

### Fare Type Issues

Although the fact that much can be inferred about the fare a survey respondent paid from the survey data on boarding method and frequency of use, users were nevertheless asked to report the type of ticket they purchased for the surveyed ferry trip. These data help confirm that the usable survey records are representative of their underlying populations by route and direction. Despite questionnaire design efforts to minimize errors, certain problems were anticipated and realized in the collection of fare type data since actual tickets are not sold at every ferry terminal for every boarding mode. Specifically, fares are charged to all riders regardless of boarding mode in the westbound and/or to-island directions. However, cross-sound routes only charge fares to vehicles eastbound, and most island routes collect no fares in the off-island (typically eastbound) direction. Consequently, ferry passengers traveling in a direction for which no fare is charged may have answered the fare type question two ways. Those familiar with the system may have indicated the type of fare they paid (or will pay) in the other direction, whereas others selected "free (no ticket tendered)" or "other".

Table 3-10 presents the distribution of reported fare types. Not surprisingly, the discounted frequent-user commuter ticket books are popular with weekday walk-on riders and vehicle passengers, as well as the drivers of vehicles. Non-drivers were especially likely to be using the discounted frequent user fare during the PM peak period. More interesting is the comparative distribution of vehicle drivers. Although peak period vehicle users outnumber PM non-peak users, the share of vehicle drivers paying a "commuter" discounted fare is, surprisingly, higher in the PM non-peak period than during the peak hours from 3-7 PM. It was expected that the regular users during the PM peak period that travel with a greater frequency than PM non-peak users would be more able to take advantage of the discounted ticket books valid for 90 days. However, apparently non-peak users also travel frequently enough to benefit from the volume discount. This result may

also reflect the expectations of some frequent vehicle drivers that the PM peak period is too congested or capacity constrained on certain routes, prompting them to travel at off-peak times.

Sunday respondents were much less likely to be taking advantage of frequent user discounted fares, a fact which is consistent with their frequency of use and trip purposes, found in Table 3-19.

**Table 3-10**
**Distribution of Reported Fare Types**
**Weekday & Sunday Survey Periods — All WSF Routes**

| *Ticket Type* | *Weekday PM Peak Period* | *Weekday PM Non-Peak Period* | *Sunday Survey Period* |
|---|---|---|---|
| Passenger Full Fare | 8.6% | 10.1% | 14.1% |
| Passenger, Frequent User Coupon | 20.2% | 11.8% | 3.9% |
| Passenger, Discount Fare | 4.0% | 5.5% | 4.7% |
| Ferry/Bus or Other Monthly Pass | 9.6% | 3.6% | 0.4% |
| Passenger Fare Not Required/Other/No Answer | 17.4% | 22.6% | 24.7% |
| Auto Driver, Full Fare | 16.5% | 20.0% | 35.1% |
| Auto/Driver, Frequent User Coupon | 21.5% | 25.3% | 15.6% |
| Oversize Vehicle | 0.9% | 0.6% | 0.5% |
| Motorcycle | 1.2% | 0.5% | 1.1% |
| **Totals** | **100.0%** | **100.0%** | **100.0%** |
| **Usable Responses** | **7,425** | **1,966** | **5,701** |
| **Expanded Ridership** | **26,494** | **12,346** | **N/A** |

## Wait Times

Surveyed ferry users were asked how long they waited to board the ferry. Table 3-11 and Table 3-12 presents these wait time distributions for the two weekday survey periods. Among those boarding as pedestrians, 87% indicated that they waited 30 minutes or less, and the wait time for nearly 60% was inside of 10 minutes. These results did not vary between weekday PM peak and off-peak times, nor were they expected to, since walk-on riders generally expect to be able to board any vessel sailing they choose. For those boarding in a vehicle, average wait times are somewhat higher, reflecting existing vehicle space capacity constraints and driver expectations about how early they need to arrive to get on a particular sailing. Nonetheless, nearly two-thirds of system-wide PM peak riders in a vehicle (62%) waited one-half hour or less to board, with the figure increasing to 79% for riders during the off-peak PM hours.

Sunday wait time results are given in Table 3-12. Walk-on passengers tended to wait slightly longer than their weekday counterparts. This may be due to the fact that Sunday users are generally less frequent users, and thus perhaps not as knowledgeable about ferry schedules, though it could also reflect schedule delays due to high traffic volumes or, on some routes, less frequent service. More likely though, is that Sunday passengers are not in as much of a hurry as weekday users, and thus are less concerned with "timing" their arrival at the terminal.

**Table 3-11**
**Wait Time Distribution by Boarding Method**
**PM Peak Survey Period — All WSF Routes**

| *Wait Time Category / Boarding Method* | *Walk Board (Pedestrian & Bicycle)* | *Vehicle Board (Driver & Passenger)* | *All Boarding Methods* | *Expanded Ridership Total* |
|---|---|---|---|---|
| Zero to 10 Minutes | 57.8% | 18.8% | 33.0% | 8,748 |
| 11 to 30 Minutes | 29.1% | 43.4% | 38.2% | 10,113 |
| 31 to 60 Minutes | 5.4% | 25.1% | 17.9% | 4,746 |
| 61 to 90 Minutes | 0.4% | 5.3% | 3.5% | 933 |
| More Than 90 Minutes | 0.3% | 2.1% | 1.4% | 383 |
| No Answer | 7.1% | 5.2% | 5.9% | 1,571 |
| **Totals** | **100.0%** | **100.0%** | **100.0%** | **26,494** |
| **Expanded Ridership** | **9,655** | **16,838** | **26,494** | |

**Table 3-12**
**Wait Time Distribution by Boarding Method**
**PM Non-Peak Survey Period – All WSF Routes**

| *Wait Time Category / Boarding Method* | *Walk Board (Pedestrian & Bicycle)* | *Vehicle Board (Driver & Passenger)* | *All Boarding Methods* | *Expanded Ridership Total* |
|---|---|---|---|---|
| Zero to 10 Minutes | 57.6% | 34.9% | 40.8% | 5,033 |
| 11 to 30 Minutes | 28.9% | 44.8% | 40.7% | 5,023 |
| 31 to 60 Minutes | 5.6% | 13.4% | 11.4% | 1,406 |
| 61 to 90 Minutes | 1.2% | 1.9% | 1.7% | 210 |
| More Than 90 Minutes | 0.1% | 0.4% | 0.3% | 40 |
| No Answer | 6.6% | 4.6% | 5.1% | 634 |
| **Totals** | **100.0%** | **100.0%** | **100.0%** | **12,346** |
| **Expanded Ridership** | **3,182** | **9,164** | **12,346** | |

**Table 3-13**
**Wait Time Distribution by Boarding Method**
**Sunday Survey Period – All WSF Routes**

| *Wait Time Category / Boarding Method* | *Walk Board (Pedestrian & Bicycle)* | *Vehicle Board (Driver & Passenger)* | *All Boarding Methods* | *Usable Responses* |
|---|---|---|---|---|
| Zero to 10 Minutes | 40.1% | 15.0% | 18.6% | 1,063 |
| 11 to 30 Minutes | 37.7% | 45.5% | 44.4% | 2,529 |
| 31 to 60 Minutes | 13.0% | 22.6% | 21.2% | 1,211 |
| 61 to 90 Minutes | 1.6% | 4.2% | 3.8% | 217 |
| More Than 90 Minutes | 1.5% | 5.3% | 4.8% | 273 |
| No Answer | 6.1% | 7.3% | 7.2% | 408 |
| **Totals** | **100.0%** | **100.0%** | **100.0%** | **5,701** |
| **Usable Responses** | **817** | **4,884** | **5,701** | |

## 3.3 MARKET SEGMENTS BY TRIP PURPOSE

The following considers ferry user trip purposes segmented by survey period, boarding method, frequency of use, and for weekday PM peak riders, by the trip origin type. WSF riders were asked to provide the purpose of the one-way ferry trip for which they were surveyed. The questionnaire provided eight choices for trip purpose including "other." While this level of detail is preserved in the survey database, similar trip purposes were aggregated for presentation purposes to the following three primary categories:

- Work / School / Business-Related;
- Medical Appt. / Personal Business / Other; and
- Social / Recreational / Shopping / Sight-seeing.

### 3.3.1 Trip Purposes by Boarding Mode and Survey Period

The following three figure and table pairs present the overall distributions of trip purposes for each survey period, and within periods, divided by walk-on, in-vehicle, and total boardings. As expected, trip purposes become increasingly less commute and business oriented moving from the weekday PM peak period to off-peak PM times to Sundays.

#### PM Peak Period

Figure 3-3 illustrates the PM peak period trip purposes for all boarding modes, followed by Table 3-14 which presents trip purpose distributions by each boarding mode. The weekday PM peak period represents nearly 25,000 ferry riders, 36% walking on and 64% in vehicles. As expected, a majority of the PM peak system-wide trip purposes were work / school / business-related for weekday travelers, particularly so for those boarding as pedestrians. The 1999 survey analysis results for trip purpose are consistent with the 1993 trip purpose findings, with about 64% of travel being work/school/business related in 1993 and approximately 65% in 1999. The non-commute trip purposes for the 1993 survey were aggregated differently than for the 1999 survey, and as such, are not directly comparable.

**Figure 3-3**
**Trip Purpose Distribution — All Boarding Modes**
**Weekday PM Peak Period — All WSF Routes**

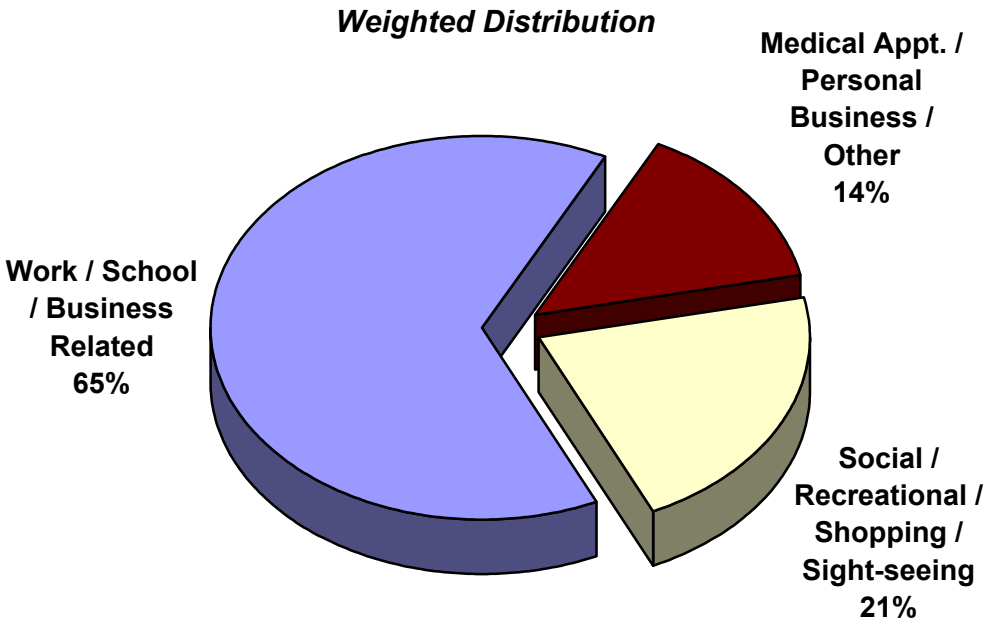



**Table 3-14**
**Trip Purpose Distribution by Boarding Mode**
**Weekday PM Peak Period — All WSF Routes**

| *Trip Purpose by Boarding Mode* | *Vehicle Board* | *Walk Board* | *All Modes* |
|---|---|---|---|
| **Work / School / Business Related** | 52.4% | 85.8% | 64.6% |
| **Medical Appt. / Personal Business / Other** | 19.4% | 4.6% | 14.0% |
| **Social / Recreational / Shopping / Sight-seeing** | 28.2% | 9.6% | 21.4% |
| **Totals** | **100.0%** | **100.0%** | **100.0%** |
| **Distribution by Boarding Mode** | **63.6%** | **36.4%** | **100.0%** |

## PM Non-Peak Period

Weekday riders traveling during the non-peak PM hours represent approximately 12,300 riders, three-quarters of which boarded in a vehicle. These PM non-peak travelers were somewhat less likely to indicate a work / school / business-related trip purpose than the PM peak period riders. However, it is not surprising that this trip purpose remained the most common during the off-peak survey period. Figure 3-4 illustrates trip purposes for all modes while Table 3-15 presents the distribution of trip purposes by each boarding mode.

It is interesting to note that among nearly 26% of PM non-peak riders that boarded as pedestrians, a majority were still traveling for work / school / business-related trip purposes. In contrast, the in-vehicle riders were more equally distributed between all three trip purpose categories, which might be expected for off-peak travel. The 1993 survey did not include a PM non-peak sample.

**Figure 3-4**
**Trip Purpose Distribution — All Boarding Modes**
**Weekday PM Non-Peak Period — All WSF Routes**

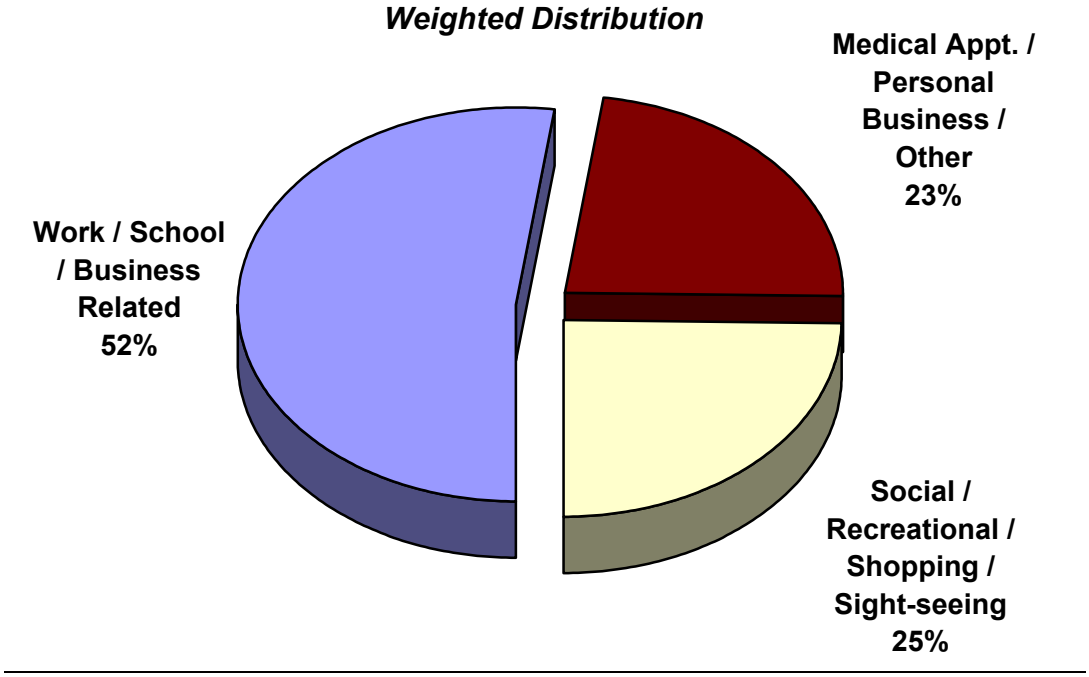



**Table 3-15**
**Trip Purpose Distribution by Boarding Mode**
**Weekday PM Non-Peak Period — All WSF Routes**

| *Trip Purpose by Boarding Mode* | *Vehicle Board* | *Walk Board* | *All Modes* |
|---|---|---|---|
| **Work / School / Business Related** | 45.1% | 73.2% | 52.3% |
| **Medical Appt. / Personal Business / Other** | 26.9% | 11.4% | 22.9% |
| **Social / Recreational / Shopping / Sight-seeing** | 28.0% | 15.3% | 24.8% |
| **Totals** | **100.0%** | **100.0%** | **100.0%** |
| **Distribution by Boarding Mode** | **74.2%** | **25.8%** | **100.0%** |

## Sunday Survey Period

Sunday survey period respondents were much more likely to board in a vehicle (86%) than as pedestrians (14%). Nearly three-quarters of Sunday travelers completing surveys also indicated the social / recreational / shopping / sight-seeing trip purpose category, as shown in Figure 3-5, which illustrates the distribution of trip purposes for all boarding modes. In comparison to 1993 survey results, again findings for the two surveys are quite similar, with a slightly higher percentage of trips undertaken for social / recreational / shopping / sight-seeing purposes. However, this minor increase is likely due to the difference in grouping categories between 1993 and 1999; in 1993 personal travel was included in the noted category, which would contribute to the higher percentage in 1993. Table 3-16 presents Sunday trip purposes for in-vehicle boardings, pedestrian boardings, and all modes combined. As might be expected, the distribution of trip purposes across boarding modes does not vary significantly for Sunday survey respondents.

**Figure 3-5**
**Trip Purpose Distribution — All Boarding Modes**
**Sunday Survey Period — All WSF Routes**

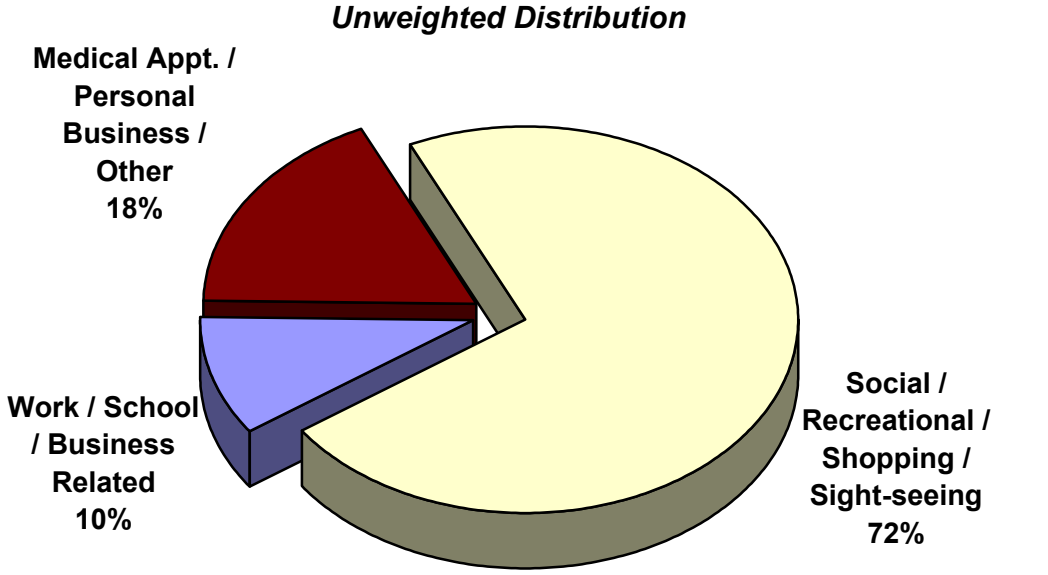


**Table 3-16**
**Trip Purpose Distribution by Boarding Mode**
**Sunday Survey Period — All WSF Routes**

| *Trip Purpose by Boarding Mode* | *Vehicle Board* | *Walk Board* | *All Modes* |
|---|---|---|---|
| **Work / School / Business Related** | 9.7% | 11.8% | 10.0% |
| **Medical Appt. / Personal Business / Other** | 18.7% | 12.9% | 17.8% |
| **Social / Recreational / Shopping / Sight-seeing** | 71.6% | 75.4% | 72.2% |
| **Totals** | **100.0%** | **100.0%** | **100.0%** |
| **Distribution by Boarding Mode** | **85.7%** | **14.3%** | **100.0%** |

## 3.3.2 Trip Purpose and Frequency of Travel

Another way to segment system-wide trip purposes is by frequency of use. During the weekday PM peak period, frequent ferry users are expected to be traveling for work/school commute or business related purposes, as is confirmed by the survey data in Table 3-17. Seventy percent of the users who indicated that they made six or more one-way ferry trips in the past week indicated a trip purpose of work/school or business activity. On the other hand, over three-quarter of those traveling for social/recreational/sightseeing/shopping reasons made five or less one-way ferry trips in the past seven days. Similarly, two-thirds of those traveling for personal business, a medical appointment, or other purpose, made five or less trips in the past week. Fully half of all weekday PM peak period riders use the ferry six or more times per week, with the most commonly reported use interval of 10 or more trips in the past week. This compares to only 40% of 1993 PM peak riders making more than six trips per week, indicating that some of the growth in ridership experienced by WSF over the past six years has come from increased trip frequency by existing riders. This trend can also be seen at the lower ridership levels. In 1993 nearly 17% of respondents recorded their first ferry ride in the past week, compared to about 12% of 1999 ridership. Interestingly, it appears that in 1999 ferry riders were more willing to provide usage information than were riders in 1993.

***"Fully half of all weekday PM peak period riders use the ferry six or more times per week."***

## Table 3-17
## Trip Purpose and Frequency of Use
## Weekday PM Peak Period — All WSF Routes

| *Frequency of Use / Trip Purpose* | *1993 All Trip Purposes* | *1999 All Trip Purposes* | *Work/ School/ Business Related* | *Medical Appt./ Personal Business/ Other* | *Social/ Recreational/ Shopping/ Sight-seeing* | *1999 Expanded Ridership Total* |
|---|---|---|---|---|---|---|
| 1st Ride in Past 7 Days* | 16.7% | 11.9% | 5.6% | 15.9% | 28.4% | 3,155 |
| 2 to 5 Rides in Past 7 Days | 24.6% | 28.6% | 16.6% | 50.9% | 50.0% | 7,575 |
| 6 to 9 Rides in Past 7 Days | 9.6% | 14.7% | 17.1% | 13.5% | 8.5% | 3,902 |
| 10 or More Rides in Past 7 Days | 31.0% | 35.7% | 52.9% | 5.9% | 3.3% | 9,458 |
| No Answer | 18.1% | 9.1% | 7.8% | 13.9% | 9.9% | 2,404 |
| **Totals** | **100.0%** | **100.0%** | **100.0%** | **100.0%** | **100.0%** | **26,494** |
| **Expanded Ridership** | | **26,494** | **17,103** | **3,718** | **5,673** | |

* 1st Ride in Past 7 Days includes passengers who answered: 1st ride in past year and 1st ride ever.

Table 3-18 presents the same distribution of usage frequencies by trip purpose for the weekday PM non-peak period. Note that weekday off-peak riders are somewhat less likely to be highly frequent users, as the most commonly reported trip frequency interval is two to five trips in the past week, compared to 10 or more trips per week during the PM peak period. The 1993 survey did not include a PM non-peak sample.

## Table 3-18
## Trip Purpose and Frequency of Use
## Weekday PM Non-Peak Period — All WSF Routes

| *Frequency of Use / Trip Purpose* | *Work/School/ Business Related* | *Medical Appt./ Personal Business/ Other* | *Social/ Recreational/ Shopping/ Sight-seeing* | *All Trip Purposes* | *Expanded Ridership Total* |
|---|---|---|---|---|---|
| 1st Ride in Past 7 Days* | 10.9% | 18.5% | 31.0% | 17.6% | 2,174 |
| 2 to 5 Rides in Past 7 Days | 25.5% | 50.4% | 46.1% | 36.3% | 4,486 |
| 6 to 9 Rides in Past 7 Days | 16.7% | 14.3% | 10.8% | 14.7% | 1,812 |
| 10 or More Rides in Past 7 Days | 38.0% | 6.4% | 3.4% | 22.2% | 2,736 |
| No Answer | 8.9% | 10.5% | 8.7% | 9.2% | 1,137 |
| **Totals** | **100.0%** | **100.0%** | **100.0%** | **100.0%** | **12,346** |
| **Expanded Ridership** | **6,459** | **2,831** | **3,056** | **12,346** | |

* 1st Ride in Past 7 Days includes passengers who answered: 1st ride in past year and 1st ride ever.

Sunday survey respondents were in general much less likely to be frequent users than their weekday counterparts. Three quarters of Sunday users indicated a frequency of use of five one-way trips or less in the past week. In fact, one-half of Sunday travelers reported that the surveyed trip was not their first (one-way) trip in the past week, a likely indication of a

return trip that began on a Friday or Saturday (see also the round-trip data in Table 3-26.) Interestingly, the share of riders reporting a usage frequency of five trips or less per week is very similar to the 1993 survey findings. However, in 1993, a higher percentage of persons were making their first trip in the past week. As was found during the PM peak period, it appears that 1999 survey respondents were more likely to provide ridership frequency information than their counterparts in 1993.

**Table 3-19**
**Trip Purpose and Frequency of Use**
**Sunday Survey Period — All WSF Routes**

| *Frequency of Use / Trip Purpose* | *1993 Usage Frequency* | *1999 Usage Frequency* | *Work/ School/ Business Related* | *Medical Appt./ Personal Business/ Other* | *Social/ Recreational/ Shopping/ Sight-seeing* | *1999 Usable Responses* |
|---|---|---|---|---|---|---|
| 1st Ride in Past 7 Days* | 36.1% | 25.0% | 10.5% | 17.7% | 28.8% | 1,424 |
| 2 to 5 Rides in Past 7 Days | 35.6% | 49.1% | 37.7% | 49.9% | 50.4% | 2,797 |
| 6 to 9 Rides in Past 7 Days | 4.5% | 6.9% | 14.9% | 9.8% | 5.1% | 394 |
| 10 or More Rides in Past 7 Days | 6.4% | 8.6% | 27.2% | 11.4% | 5.3% | 489 |
| No Answer | 17.4% | 10.5% | 9.6% | 11.2% | 10.4% | 597 |
| **Totals** | **100.0%** | **100.0%** | **100.0%** | **100.0%** | **100.0%** | **5,701** |
| **Usable Responses** | | **5,701** | **570** | **1,016** | **4,115** | |

* 1st Ride in Past 7 Days includes passengers who answered: 1st ride in past year and 1st ride ever.

### 3.3.3 PM Peak Trip Purposes by Trip Origin Type

Another interesting way to segment weekday PM peak trip purposes is by the type of place serving as the one-way trip origin. Table 3-20 presents these results, which confirm what may seem obvious — that nearly all late afternoon ferry trips originating from a work or school location are for a work/school/business-related trip purpose. The most common purpose for PM peak trips originating from a non-work/non-school location is social/recreation/shopping/ sightseeing, representing nearly half of home-based and other-based trips. Interestingly, nearly a third of the trips originating from home in the PM peak period are work/school/business related.

**Table 3-20**
**Trip Purpose and Origin Type**
**Weekday PM Peak Survey Period – All WSF Routes**

| *Trip Purpose / Origin Type* | *Home* | *Work or School* | *Other* | *All Origin Types* | *Expanded Ridership Total* |
|---|---|---|---|---|---|
| Work/School/Business Related | 30.4% | 95.7% | 22.1% | 64.6% | 17,103 |
| Medical Appt./Personal Business/Other | 23.0% | 2.2% | 32.1% | 14.0% | 3,718 |
| Social/Recreational/Shopping/Sight-seeing | 46.6% | 2.0% | 45.8% | 21.4% | 5,673 |
| **Totals** | **100.0%** | **100.0%** | **100.0%** | **100.0%** | **26,494** |
| **Origin Type Distribution** | **14.8%** | **56.0%** | **29.2%** | **100.0%** | |
| **Expanded Ridership** | **3,922** | **14,836** | **7,736** | **26,494** | |

# 3.4 TRIP ORIGINS AND DESTINATIONS

The analysis of trip origins and destination at a system-wide level calls for a broad brush approach, since there is usually only one or two routes that would reasonably serve most origin-destination pairs. This section identifies the place type combinations of ferry user trip origins and destinations by survey period, and also portrays the geographic locations of these destinations by the ferry boarding method or mode used for associated trip.

During the weekday PM peak period, two thirds of ferry riders are traveling westbound, a result which is consistent with the 1993 survey. On Sunday, slightly less than one-half (46%) of survey respondents were traveling westbound, compared to 1993 were travel was equally split by direction. The near balance of directional travel during the Sunday survey period for both 1993 and 1999 likely reflects the balance of recreational and cultural activities on either side of Puget Sound.

## 3.4.1 Origin and Destination Types

Survey respondents were asked to identify the types of places they reported for their trip origin and destination. Three choices were given as home, work/school, or some other place. The distribution of trips for the nine combinations of these three choices are provided for each travel direction and both direction totals. Table 3-21 presents the directional origin and destination type results for the weekday PM peak period. Fully 56% of all ferry riders during the PM peak are coming from a work or school location and nearly all of these (52%) are headed home, whereas only about 15% of all trips originate from home. These results are even more pronounced when considering the two-thirds of all ferry riders that are traveling westbound, with 68% of all trips originating from work or school, and only 6% from home. Trips originating from other locations and destined for home represent roughly equal shares of the directional totals; however, the eastbound percentage of other-to-other trips is three time that for westbound other-to-other travel. Taking into account all origin types, 74% of the PM peak ferry travelers are destined for home.

**Table 3-21**
**Origin & Destination Types by Direction**
**Weekday PM Peak Period — All WSF Routes**

| *Origin & Destination Types* | | *Destination Shares Across All Origins:* | | | *Expanded* |
|---|---|---|---|---|---|
| *Origin Place* | *Destination Place* | *Eastbound Trips* | *Westbound Trips* | *Both Directions* | *Ridership Total* |
| **Home** | Home | 3.2% | 1.2% | 1.9% | 497 |
| | Work/School | 7.0% | 1.3% | 3.1% | 829 |
| | Other | 20.6% | 4.7% | 9.8% | 2,596 |
| **Work/School** | Home | 23.1% | 65.2% | 51.7% | 13,686 |
| | Work/School | 2.2% | 0.7% | 1.2% | 319 |
| | Other | 5.0% | 2.3% | 3.1% | 831 |
| **Other** | Home | 22.8% | 19.4% | 20.5% | 5,426 |
| | Work/School | 1.5% | 0.5% | 0.8% | 212 |
| | Other | 14.6% | 4.8% | 7.9% | 2,099 |
| **Totals** | | **100.0%** | **100.0%** | **100.0%** | **26,494** |
| **Expanded Ridership** | | **8,524** | **17,970** | **26,494** | |

Table 3-22 gives the same directional origin and destination type results for the off-peak weekday PM hours. Though still the most common of the nine trip types, travel from work/school to home in both direction has dropped to 28% of all trips in the PM non-peak period. Home-based trips have risen to over 26% of the total trips, and other-based trips amount to 38% of all off-peak trips. Considering all origin types, 56% of PM non-peak trips are destined for a home location.

Sunday trip origin and destination type combinations are presented in Table 3-23. Only 4% of Sunday survey respondents indicated work/school trip origin, and even fewer indicated work/school destination. The most common origin-destination type combination proved to be other to home, which at 52% of all respondents and 59% of eastbound respondents, is consistent with the trip purpose distribution and round-trip results presented elsewhere in this chapter. Similarly, home to other trips accounted 24% of all Sunday respondent travel.

## Table 3-22
## Origin & Destination Types by Direction
## Weekday PM Non-Peak Period – All WSF Routes

| Origin & Destination Types | | Destination Shares Across All Origins: | | | Expanded |
|---|---|---|---|---|---|
| Origin Place | Destination Place | Eastbound Trips | Westbound Trips | Both Directions | Ridership Total |
| **Home** | Home | 2.0% | 1.1% | 1.5% | 183 |
| | Work/School | 16.3% | 1.6% | 7.9% | 980 |
| | Other | 27.9% | 8.8% | 17.0% | 2,094 |
| **Work/School** | Home | 9.6% | 42.9% | 28.6% | 3,531 |
| | Work/School | 4.0% | 2.9% | 3.4% | 414 |
| | Other | 4.0% | 3.8% | 3.9% | 481 |
| **Other** | Home | 18.5% | 30.8% | 25.5% | 3,148 |
| | Work/School | 4.4% | 1.1% | 2.5% | 311 |
| | Other | 13.3% | 7.1% | 9.8% | 1,205 |
| **Totals** | | **100.0%** | **100.0%** | **100.0%** | **12,346** |
| **Expanded Ridership** | | **5,302** | **7,044** | **12,346** | |

## Table 3-23
## Origin & Destination Types by Direction
## Sunday Survey Period – All WSF Routes

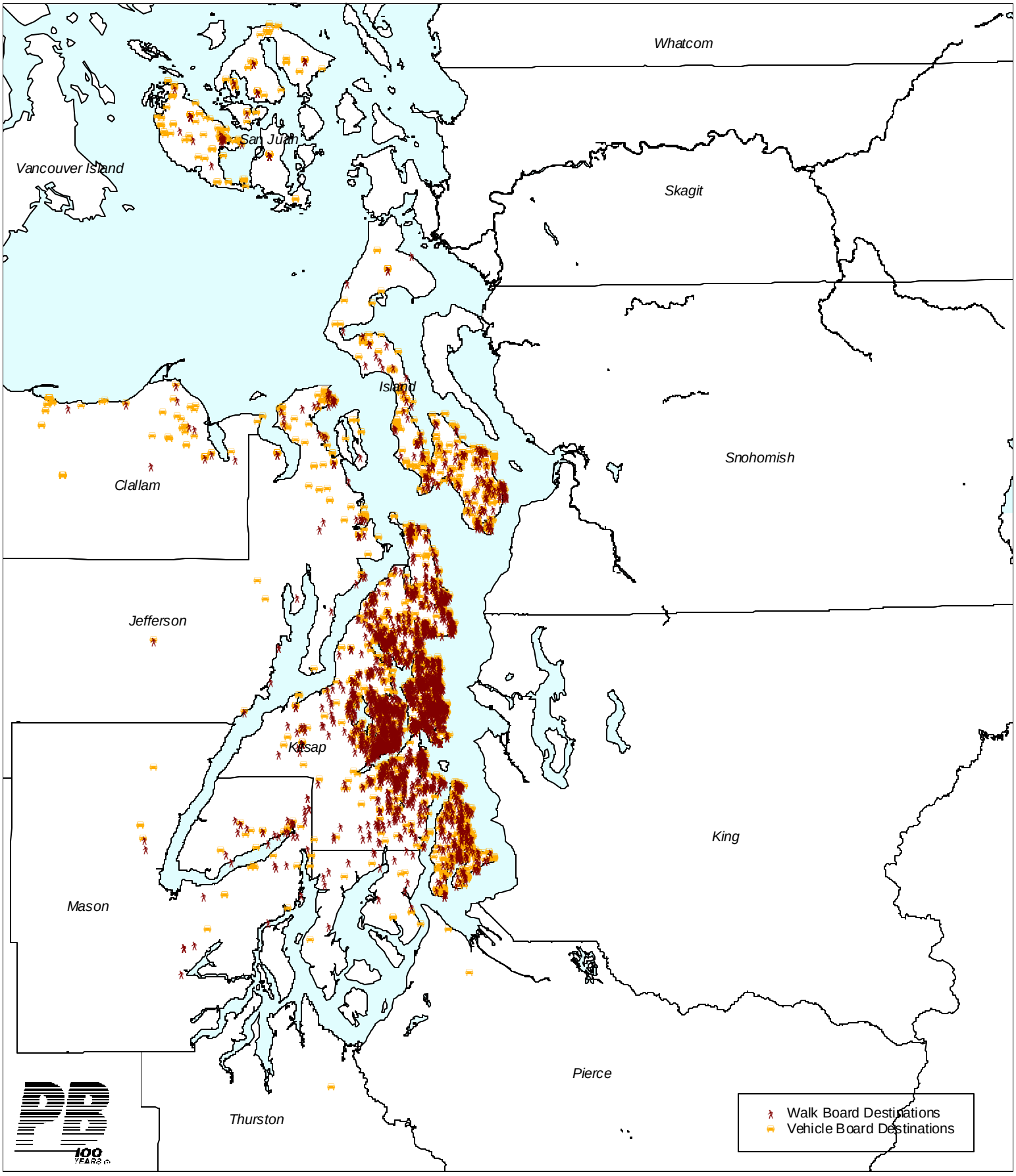
| Origin & Destination Types | | Destination Shares Across All Origins: | | | Expanded |
|---|---|---|---|---|---|
| Origin Place | Destination Place | Eastbound Trips | Westbound Trips | Both Directions | Ridership Total |
| **Home** | Home | 7.5% | 2.7% | 5.3% | 303 |
| | Work/School | 4.2% | 0.9% | 2.7% | 153 |
| | Other | 17.8% | 31.5% | 24.1% | 1,373 |
| **Work/School** | Home | 1.3% | 6.0% | 3.5% | 198 |
| | Work/School | 0.2% | 0.2% | 0.2% | 12 |
| | Other | 0.2% | 0.5% | 0.3% | 18 |
| **Other** | Home | 58.9% | 42.8% | 51.5% | 2,934 |
| | Work/School | 0.9% | 0.4% | 0.7% | 38 |
| | Other | 9.1% | 15.0% | 11.8% | 672 |
| **Totals** | | **100.0%** | **100.0%** | **100.0%** | **5,701** |
| **Usable Responses** | | **3,080** | **2,621** | **5,701** | |

### 3.4.2 System-wide Trip Destination Patterns

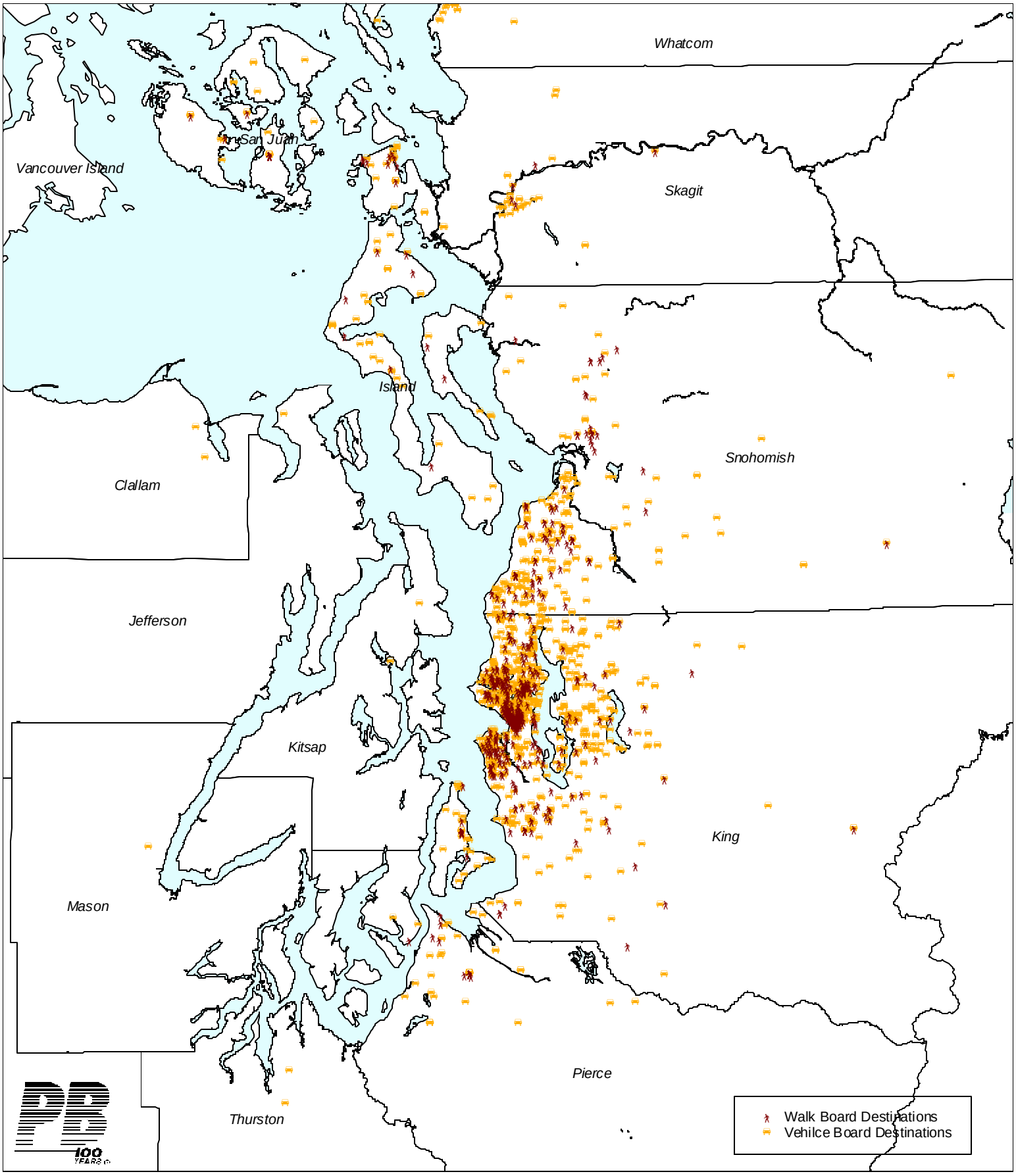
Figure 3-6 portrays the system-wide westbound trip destinations for all weekday PM peak period ferry users, and Figure 3-7 presents a similar map for eastbound travel. Both map figures plot destination locations using symbols to differentiate in-vehicle from walk-on boardings.

Comparing the two figures, westbound destinations appear to be relatively more geographically concentrated relative to the dispersion of eastbound destinations. This may be related to the high percentage of weekday westbound users returning home from work and school origins on the east side of Puget Sound (see Table 3-20 and Table 3-21.)

# Figure 3-6
# Westbound Weekday PM Peak Period Trip Destinations by Boarding Method



# Figure 3-7
# Eastbound Weekday PM Peak Period Trip Destinations by Boarding Method



## 3.5 TRAVEL MODES AND ROUND-TRIP STATISTICS

### 3.5.1 Round-Trip Patterns and Methods

Ferry users' round-trip travel patterns vary considerably by route, mode, and time period as some users choose to use alternative routes or highway modes for the other half of their trip and/or travel on another day. System-wide round-trip statistics by survey period are presented below in Table 3-24, Table 3-25, and Table 3-26. About 77% of weekday PM peak riders were making the second half of a round-trip, compared to 60% of PM non-peak riders and 63% of Sunday survey respondents. Of weekday PM peak riders making the second half of a round-trip, roughly 79% are completing a round-trip begun on the same day, though 6.5% chose a different ferry or a highway route for the first half of their round-trip. Not surprisingly, those on the first leg of a round-trip were more likely to complete the round trip on a later day. In comparing 1993 and 1999 survey findings, a larger share of 1993 respondents (82% versus 77% in 1999) reported that they were completing the second half of a round-trip. Generally, the share of persons who reported they would either use a different ferry route or not use the ferry system at all for the other half of their round-trip has remained consistent since 1993, averaging about 9% for the PM peak period.

A third of Sunday respondents reported that they were on the first half of a round-trip, and about 66% of these riders expected to complete their round-trip on that same day, though not all using the same route. In contrast, those Sunday respondents on the second half of a round-trip were more likely than not to have made the initial half on an earlier day. Comparing the 1993 survey results to the 1999 findings, a slightly higher percentage of 1993 respondents were completing the second half of a round-trip when surveyed, at 74% compared to about 63% in 1999. However, this might be explained by the fact that the 1999 Sunday survey period was generally longer than in 1993, stretching earlier into the day. In general, over 75% of respondents to both the 1993 and 1999 surveys reported they would or were completing their round-trip using the same ferry route.

## Table 3-24
## Round-Trip Patterns and Methods
## PM Peak Survey Period – All WSF Routes

| *Round-Trip Segment & Method / Time* | *Today* | *Some Other Day* | *No Answer* | *Expanded Ridership Total* |
|---|---|---|---|---|
| **Declared Initial Trip** | | | | **76.9%** |
| **(Reported on 2nd Half of Round-Trip)** | | | | |
| Same Ferry Route | 70.5% | 5.9% | 10.8% | 17,735 |
| Not Using Ferry System | 2.0% | 0.6% | 0.3% | 606 |
| Different Ferry Route | 4.5% | 1.1% | 0.5% | 1,242 |
| No Answer | 2.1% | 0.5% | 1.3% | 778 |
| Total Declared Initial Trip | 79.1% | 8.0% | 12.9% | 20,361 |
| **Expected Return Trip** | | | | **20.6%** |
| **(Reported on 1st Half of Round-Trip)** | | | | |
| Same Ferry Route | 47.2% | 26.6% | 9.3% | 4,534 |
| Not Using Ferry System | 2.6% | 1.9% | 0.5% | 270 |
| Different Ferry Route | 1.9% | 2.6% | 0.3% | 255 |
| No Answer | 2.7% | 2.5% | 2.1% | 402 |
| Total Expected Return Trip | 54.3% | 33.5% | 12.2% | 5,460 |
| **Did Not Report Round-Trip Status** | | | | **2.5%** |
| No Answer | | | 100.0% | 672 |
| **Expanded Ridership** | **19,063** | **3,468** | **3,963** | **26,494** |

## Table 3-25
## Round-Trip Patterns and Methods
## PM Non-Peak Survey Period – All WSF Routes

| *Round-Trip Segment & Method / Time* | *Today* | *Some Other Day* | *No Answer* | *Expanded Ridership Total* |
|---|---|---|---|---|
| **Declared Initial Trip** | | | | **59.4%** |
| **(Reported on 2nd Half of Round-Trip)** | | | | |
| Same Ferry Route | 69.7% | 6.5% | 7.5% | 6,144 |
| Not Using Ferry System | 4.0% | 0.5% | 0.5% | 371 |
| Different Ferry Route | 7.3% | 1.5% | 0.2% | 656 |
| No Answer | 1.3% | 0.1% | 0.8% | 160 |
| Total Declared Initial Trip | 82.3% | 8.7% | 9.1% | 7,331 |
| **Expected Return Trip** | | | | **38.3%** |
| **(Reported on 1st Half of Round-Trip)** | | | | |
| Same Ferry Route | 58.6% | 14.2% | 9.5% | 3,884 |
| Not Using Ferry System | 4.1% | 1.8% | 1.2% | 337 |
| Different Ferry Route | 1.7% | 1.1% | 0.7% | 167 |
| No Answer | 4.0% | 0.6% | 2.5% | 337 |
| Total Expected Return Trip | 68.4% | 17.7% | 13.9% | 4,725 |
| **Did Not Report Round-Trip Status** | | | | **2.3%** |
| No Answer | | | 100.0% | 290 |
| **Expanded Ridership** | **9,264** | **1,471** | **1,610** | **12,346** |

**Table 3-26**
**Round-Trip Patterns and Methods**
**Sunday Survey Period — All WSF Routes**

| *Round-Trip Segment & Method / Time* | *Today* | *Some Other Day* | *No Answer* | *Usable Responses* |
|---|---|---|---|---|
| **Declared Initial Trip** | | | | **62.6%** |
| **(Reported on 2nd Half of Round-Trip)** | | | | |
| Same Ferry Route | 34.0% | 35.9% | 8.9% | 2,812 |
| Not Using Ferry System | 4.4% | 3.2% | 0.6% | 292 |
| Different Ferry Route | 4.5% | 5.3% | 0.4% | 364 |
| No Answer | 0.8% | 1.1% | 0.9% | 100 |
| Total Declared Initial Trip | 43.7% | 45.5% | 10.8% | 3,568 |
| **Expected Return Trip** | | | | **35.0%** |
| **(Reported on 1st Half of Round-Trip)** | | | | |
| Same Ferry Route | 57.0% | 14.3% | 9.0% | 1,600 |
| Not Using Ferry System | 3.4% | 1.7% | 1.0% | 121 |
| Different Ferry Route | 3.8% | 3.0% | 0.4% | 141 |
| No Answer | 2.9% | 1.6% | 2.2% | 132 |
| Total Expected Return Trip | 67.0% | 20.6% | 12.4% | 1,994 |
| **Did Not Report Round-Trip Status** | | | | **2.4%** |
| No Answer | | | 100.0% | 139 |
| **Usable Responses** | **2,895** | **2,035** | **771** | **5,701** |

## 3.5.2 Access Mode/Boarding Method/Egress Mode

The 1999 WSF Travel Survey attempted to employ a simpler approach to identify the likely chain of transportation modes used by ferry riders. Whereas the previous 1993 survey had provided very detailed choices for access, boarding and egress modes, and did not *a priori* restrict certain low probability combinations (e.g., accessing the terminal by walking but boarding in a vehicle), the 1999 survey assumed that if someone boarded in a vehicle, they also came to and departed the ferry terminals by vehicle. Therefore, access and egress mode questions were only asked of those who indicated that they boarded the ferry as a pedestrian, and simpler choices were provided in 1999. To better facilitate the comparison of access/boarding/egress mode data between the two survey years, the 1993 survey results were expanded to control for varying response rates by different modes (the same as was done for the 1999 data), and recomputed to provide access and egress mode distributions by boarding method. While generally comparable, the reader should be aware that small differences in the access/boarding/ egress mode data between 1993 and 1999 could easily be the result of the different survey procedures used as well as respondent and/or measurement error rather than real changes over time.

For the PM peak period, 64% of all riders boarded in a vehicle according to 1999 survey results, very similar to findings from the 1993 survey, shown in Table 3-27. In 1999, approximately 32% of persons boarding in a vehicle reported they were passengers, down from over 37% in 1993. This represents a reduction in the average vehicle occupancy (AVO) of system-wide vehicle boardings from 1.60 persons per vehicle in 1993 to 1.48 in 1999. Although some of this difference may be attributable to different data collection methods between the two years, systemwide ridership data for the month of May in 1993 and 1999 also confirm this trend. The percentage of 1999 passengers who boarded in a vehicle progressively increases from 64% in the weekday PM peak to 74% in the PM off-peak to 86% on Sundays. This is consistent with the findings on trip purposes, frequencies of use, destination types, and other travel patterns presented.

***"Average vehicle occupancy of system-wide vehicle boardings has decreased from 1.60 persons per vehicle in 1993 to 1.48 in 1999."***

Unexpanded boarding mode data for in-vehicle boardings on Sunday (Table 3-30) suggests an AVO of 1.4 persons per vehicle. However, it was observed that vehicle passengers have a much lower response rate than vehicle drivers, a result which was adjusted for in the weekday survey through the expansion of responses to total survey period ridership (see section 2.2.3.). Examining responses for number of passengers reported by vehicle drivers only indicates an AVO of 2.1 persons per vehicle, which is consistent with existing WSF Sunday data where available.

Approximately 36% of 1999 PM peak period passengers boarded the ferry vessel as a walk-on passenger, very similar to findings for the 1993 survey, with about 37% walk-on boardings. Among 1999 weekday PM peak riders boarding as pedestrians, walk or bicycle access to the ferry proved to be considerably more prevalent than walk or bike egress from the ferry. Much of this likely stems from the fact that two thirds of all riders are traveling westbound, and many of the walk-on westbound trips originate from downtown Seattle with its high employment density. The 1999 survey results also reflect a significant increase in system-wide use of transit for access to and egress from the ferry during the PM peak period, compared to 1993. Nearly 24% of all walk-on riders accessed the ferry terminal by bus or shuttle, versus 14% in 1993, and 32% departed the ferry terminal by transit, versus 16% in 1993. This likely reflects the improved transit service, timed ferry-bus connections, and ferry-bus passes implemented by Kitsap Transit and other transit agencies throughout the WSF service area.

***"The 1999 survey results reflect a significant increase in system-wide use of transit for access to and egress from the ferry during the weekday PM peak period, compared to 1993."***

It should be noted that the 1993 results appear to have a larger share of walk access and egress, and a smaller share of vehicle access and egress than the 1999 data. However, much of this difference may be attributable to differences in the two surveys approach in collecting access and egress information. In 1993, respondents were asked how they came from their last stop and went to their first destination, which likely included instances of

walking from/to a parked vehicle as an "intermediate stop." Alternatively, the 1999 survey asked for the primary access and egress modes that were used to come from the person's initial origin and go to the person's final destination.

Results from the 1999 Sunday survey indicate that personal vehicles are not only the primary boarding method for Sunday WSF patrons, but also the remain the primary mode for terminal access and egress by those boarding as pedestrians.

**Table 3-27**
**Access Mode to Ferry — Boarding Method — Egress Mode from Ferry**
**1993 Weekday PM Peak Period — All WSF Routes**

| *Access Mode to Ferry Terminal* | *Percent Distrib.* | *Boarding Method* | *Percent Distrib.* | *Mode Shares* | *Egress Mode from Ferry Terminal* | *Percent Distrib.* |
|---|---|---|---|---|---|---|
| Pedestrian/Bicycle | 58.9% | **Walked-On** | | **36.8%** | Pedestrian/Bicycle | 36.6% |
| By Vehicle* | 26.8% | Pedestrian | 95.7% | | By Vehicle* | 47.8% |
| By Bus or Shuttle | 14.3% | Pedestrian w/ Bicycle | 4.3% | | By Bus or Shuttle | 15.6% |
| Total | 100.0% | Total | 100.0% | | Total | 100.0% |
| In-Vehicle | 100.0% | **In-Vehicle** | | **63.2%** | In-Vehicle | 100.0% |
| | | Vehicle Drivers* | 62.6% | | | |
| | | Vehicle Passengers | 37.4% | | | |
| | | Total | 100.0% | | | |
| | | **Total** | | **100.0%** | | |
| | | **Expanded Total** | | **22,755** | | |

* includes motorcycles

## Table 3-28
## Access Mode to Ferry — Boarding Method — Egress Mode from Ferry
## 1999 Weekday PM Peak Period — All WSF Routes

| *Access Mode to Ferry Terminal* | *Percent Distrib.* | *Boarding Method* | *Percent Distrib.* | *Mode Shares* | *Egress Mode from Ferry Terminal* | *Percent Distrib.* |
|---|---|---|---|---|---|---|
| Pedestrian/Bicycle | 42.4% | **Walked-On** | | **36.4%** | Pedestrian/Bicycle | 18.0% |
| By Vehicle* | 34.2% | Pedestrian | 96.4% | | By Vehicle* | 50.1% |
| By Bus or Shuttle | 23.5% | Pedestrian w/ Bicycle | 3.6% | | By Bus or Shuttle | 31.9% |
| Total | 100.0% | Total | 100.0% | | Total | 100.0% |
| In-Vehicle | 100.0% | **In-Vehicle** | | **63.6%** | In-Vehicle | 100.0% |
| | | Vehicle Drivers* | 67.6% | | | |
| | | Vehicle Passengers | 32.4% | | | |
| | | Total | 100.0% | | | |
| | | **Total** | | **100.0%** | | |
| | | **Expanded Ridership** | | **26,494** | | |

* includes motorcycles

## Table 3-29
## Access Mode to Ferry — Boarding Method — Egress Mode from Ferry
## 1999 Weekday PM Non-Peak Period — All WSF Routes

| *Access Mode to Ferry Terminal* | *Percent Distrib.* | *Boarding Method* | *Percent Distrib.* | *Mode Shares* | *Egress Mode from Ferry Terminal* | *Percent Distrib.* |
|---|---|---|---|---|---|---|
| Pedestrian/Bicycle | 39.5% | **Walked-On** | | **25.8%** | Pedestrian/Bicycle | 24.7% |
| By Vehicle* | 40.0% | Pedestrian | 96.3% | | By Vehicle* | 51.7% |
| By Bus or Shuttle | 20.5% | Pedestrian w/ Bicycle | 3.7% | | By Bus or Shuttle | 23.6% |
| Total | 100.0% | Total | 100.0% | | Total | 100.0% |
| In-Vehicle | 100.0% | **In-Vehicle** | | **74.2%** | In-Vehicle | 100.0% |
| | | Vehicle Drivers* | 69.8% | | | |
| | | Vehicle Passengers | 30.2% | | | |
| | | Total | 100.0% | | | |
| | | **Total** | | **100.0%** | | |
| | | **Expanded Ridership** | | **12,346** | | |

* includes motorcycles

## Table 3-30
## Access Mode to Ferry — Boarding Method — Egress Mode from Ferry
## 1999 Sunday Survey Period — All WSF Routes

| *Access Mode to Ferry Terminal* | *Percent Distrib.* | *Boarding Method* | *Percent Distrib.* | *Mode Shares* | *Egress Mode from Ferry Terminal* | *Percent Distrib.* |
|---|---|---|---|---|---|---|
| Pedestrian/Bicycle | 23.8% | **Walked-On** | | **14.3%** | Pedestrian/Bicycle | 28.8% |
| By Vehicle* | 68.7% | Pedestrian | 91.7% | | By Vehicle* | 64.6% |
| By Bus or Shuttle | 7.6% | Pedestrian w/ Bicycle | 8.3% | | By Bus or Shuttle | 6.6% |
| Total | 100.0% | Total | 100.0% | | Total | 100.0% |
| In-Vehicle | 100.0% | **In-Vehicle** | | **85.7%** | In-Vehicle | 100.0% |
| | | Vehicle Drivers* | 71.3% | | | |
| | | Vehicle Passengers | 28.7% | | | |
| | | Total | 100.0% | | | |
| | | **Total** | | **100.0%** | | |
| | | **Usable Responses** | | **5,701** | | |

* includes motorcycles